BDCP/California Water Fix RDEIR/SDEIS
Comment Form

Document: ***July 15, 2015 Public Draft- RDEIR/SDEIS Sections 3 and 4, Chapter 11, and Appendix D, Fish and Aquatic Resources***

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No.	Page	Line #	Comment	ICF Response
	General		The process between modeling or other analysis and NEPA Effects/CEQA Conclusions determinations needs to be described more clearly. Generally the analysis shows differences between NAA/Existing Conditions and Proposed Project for habitat/physical values such as flow or temperature based on 2010 modeling for scenarios H3 and H4. These values are also frequently presented in mean or average values over long periods of time. What is not clear is how these modeled physical changes are translated into biological effects and subsequently how these biological effects are deemed to be significant/adverse or not in the NEPA Effects/CEQA Conclusions. It should be made clear that these determinations are often based on professional experience rather than a rigorous quantitative process that translates modeled physical effects into biological effects. This was acknowledged in the BOR's recent DEIS for the Coordinated Long Term Operations of the CVP/SWP. In order to clarify how these decisions are made more effort could be placed into describing the rationale behind the decision. It is also not clear what species population estimates or species abundance indexes these modeled effects are applied to in assessing biological effects and NEPA Effects/CEQA Conclusions. Species population indices and abundance estimates are trending	

			down both long term, under current conditions, and are likely to continue to trend down into the future due to climate change, increased demand, and sea level rise (*see attached Supplemental Document containing a summary of CEQA conclusions*). Please note that there are numerous instances where the NEPA effects (no adverse impact) are utilized over CEQA conclusions (which show significant impact) because NAA separates non project impacts (climate change, sea level rise, increased demand) from project impacts. Fish populations in the wild; however, are not are subject to NEPA/CEQA distinctions. Rather they are subject to the conditions and stressors that they experience and populations will respond accordingly between Existing Conditions and NAA. The question is then whether the translation between modeled physical effects, biologically meaningful effects, and subsequently NEPA/CEQA determinations is made based on knowledge of current fish populations or are these decisions made based on the effect project operations may have on future populations at the NAA baseline in light of degrading environmental conditions. This is an important distinction because smaller magnitudes of change in physical habitat attributes may have a greater effect on aquatic species with critically low population abundances in the future.	
	3-7	29-32	*"Refer to Section 4.3.7, Fish and Aquatic Resources, Impacts AQUA-1, AQUA-19, AQUA-37, AQUA-55, AQUA-73, AQUA-91, AQUA-109, AQUA-127, AQUA-145, AQUA-163, AQUA-181, and AQUA-199 for the analysis of Alternative 4A. These construction-related impacts would be identical for Alternative 4 because the proposed physical water conveyance facilities are the same for both alternatives."* The text written here creates a circular path the reader must follow. AQUA-109	

			for example, refers the reader back to Alternative 4 (presumably of the Public Draft EIR/EIS?) for a description of impacts. This creates confusion and does not seem to align with the text written here.	
	4.2-1	16-18	This sentence states that the NAA_ELT period assumes a time period of approximately 15 years following project approval, but the footnote on this page suggests that the ELT is modeled at 2025, which will be significantly shorter than 15 years. Please update the language for consistency and provide an explanation in the text for this discrepancy.	
	4.2-51	31-36	RPA Action I.7 will provide improved connectivity and passage for SRC, as well as other salmon runs. This information should be updated as appropriate to this discussion. However, it is unclear why specific reference to RPA 1.7 is called out here when many of the RPAs are aimed at increasing abundances of listed fishes. If the intent is to make a connection between adult passage resulting in increased success of spawning and population abundance, which could then lead to increased entrainment, the discussion could use additional clarification.	
	4.2-54	12-14	This CEQA conclusion overstates the number of species that will likely have rearing benefits from RPA Action I.6.1. The extent by which RPA Action I.6.1 will have rearing benefits for steelhead is unclear and rearing benefits to green and white sturgeon are even more uncertain. In addition, splittail may have some rearing benefits, but the benefits of RPA Action I.6.1 to splittail are predominantly in regards to spawning habitat, and should therefore be included in the Water Ops Effects on Spawning in the above section.	
	4.2-54	39-43	It is unclear whether this section is discussing impacts on migration habitat for juveniles or for adults—we assume it is referring to juvenile migration. While RPA Action I.7 will likely have benefits for outmigrating juveniles, the RPA is targeting adult passage. Therefore, if this section is about juvenile migration	

			habitat (which makes the most sense), then it may not be appropriate to discuss the potential indirect benefits from RPA Action I.7 with any certainty. It would be more appropriate to call out RPA Action I.6.1 benefits here, since that RPA targets juveniles, and discuss the benefits of the Yolo Bypass as a migratory pathway as compared to the Sacramento River. In addition, the extent in which there are migration habitat benefits to splittail from this RPA are uncertain; the benefits from floodplain for this species are largely spawning and some level of rearing.	
	4.2-57	15	The term "Important Farmland" should be defined and reference or footnoted.	
	4.2-57	23	Are "existing plans and programs" also referring to implementation of the BiOp RPAs? It would be useful to include a little more detail on some examples of which RPAs will be converting agricultural lands, including e.g. RPA I.6.1, upon which this CEQA conclusion is being drawn, especially given that it is a "significant" conclusion.	
	4.3.4-24	27-30	The language here seems to suggest that modeled electrical conductivity for Alt 4A is based on results using assumptions from Alt 4. This is particularly concerning as Alt 4 has a substantial amount of tidal restoration and a compliance point at Threemile slough which is further upstream than the compliance point for Alt 4A (Emmaton). If this is the case, then the conclusions for EC under Alt 4A are likely muted and reflect conditions which are substantially different than what is likely to occur within the Plan Area. A discussion of the difference, or reasons to why there is no difference, should be included.	
	4.3.4-30	16-19	*"The implementation of mitigation actions shall be focused on avoiding or minimizing those incremental effects attributable to implementation of Alternative 4A operations only. Mitigation actions to avoid or minimize the incremental EC effects attributable to climate change/sea level rise are not required because these changed*	

			conditions would occur with or without implementation of Alternative 4A." Operations of the SWP and CVP (including north Delta Diversions) will continue to need to meet D-1641 compliance standards even in the face of sea level rise. We have understood that operations will continue to manage for D-1641 compliance standards by adjusting diversions and reservoir releases as part of routine operations. Thus it is unclear how this mitigation measure would be implemented to the impacts would be less-than-significant.	
	4.3.4-30	24-36	CALSIM II, as described in 8.3.1.1, places EC compliance at Emmaton at the highest priority, and either achieves the objective, or decides that there is no feasible way to meet it. Please provide additional information on a mitigation measure such as WQ-11a will be able to have a meaningful affect at avoiding and minimizing impacts beyond what CALSIM II predicts, as the model should already incorporate management of diversions into its Artificial Neural Network.	
5	4.3.7-33	18	"AQUa-1b" should be "AQUA-1b".	
6	4.3.7-33	33	Here and on Line 37, the text appears to mistakenly refer to Delta Smelt, rather than Longfin Smelt.	
7	4.3.7-34	4	Here and at Line 8 there appear to be mistaken references to Delta Smelt, rather than Longfin Smelt.	
8	4.3.7-35	19	The meaning of sentence here would be clearer if the word "losses" was deleted after the word "entrainment".	
9	4.3.7-36	29	For added clarity consider finishing the sentence here with the phrase "…Incidental Take Permit issued by DFW."	
10	4.3.7-36	29	The sentence beginning here with "However", in combination with subsequent sentences, reads awkwardly and contains some redundancy. Consider revising this section of text to read something like: "However, at this time, the best predictor of Longfin Smelt	

			abundance is the statistical relationship between January through June X2 and Fall recruitment developed by Kimmerer et al. (2009), indicating that lower (farther downstream) X2 is associated with greater abundance. For the purposes of this impact assessment, the Kimmerer et al. (2009) relationship was used to determine how project-related changes in winter-spring X2 position might influence Longfin Smelt Fall recruitment. Consistent with the adaptive management and monitoring program described in Section 4.1, Alternative 4A would implement investigations to improve understanding of factors affecting Longfin Smelt abundance and better inform future project operations."	
11	4.3.7-38	12	It appears "has" should instead be "have".	
12	4.3.7-39	Table 11-4A-8	Footnote "1" in the table hints at something important relative to project impacts on Longfin Smelt. This species has declined severely and it is likely that CVP/SWP attenuation of winter-spring flows has contributed to this trend, and that the species can't sustain itself under existing operations. The effect of existing operations can be assessed using the X2/abundance relationship developed by Kimmerer et al. (2009), and such an assessment should be incorporated into cumulative effects discussions. The sustainability risk posed by existing operations argue strongly for avoidance of even small negative effects associated with the proposed project, like those associated with Alternative 4A(H3).	
	4.3.7-44	16	General Comment – Winter Run Chinook Salmon CDFW will continue to participate in CWF development of water operations criteria and analysis for Winter-run effects. This is currently happening under the development of the Section 7 BA, with an expectation that the Final EIR/EIS will be consistent with the results and determinations of those efforts. Should the results of those efforts indicate that mitigation measures are necessary under	

			CEQA, CDFW's expectation is that mitigation measures identified will be incorporated into the Final EIR/EIS.	
	4.3.7-50	24 and 36	Suggest deleting "as is currently being done" here and in the next paragraph.	
	4.3.7-60	44	It is unclear how the author can come to this conclusion without a discussion of existing operations and RPA actions intended to address significant impacts associated with the existing project operations (NAA_ELT). The BiOps found significant impacts under the NAA_ELT and require RPAs to avoid jeopardy. This project summarizes that it would then have additional impacts when compared to the NAA_ELT, yet concludes that no mitigation is required.	
	4.3.7-77	20	General Comment – Spring Run Chinook salmon CDFW will continue to participate in CWF development of water operations criteria and BA/BO and 2081 analysis for Spring Run Chinook salmon effects with the expectation that the Final EIR/EIS will be consistent with the results and determinations of those efforts. Should the results of that effort indicate that mitigation measures are necessary under CEQA, CDFW's expectation is that mitigation measures identified will be incorporated into the Final EIR/EIS.	
	4.3.7-124	28	General Comment – Fall/Late Fall Run Chinook salmon CDFW will continue to participate in CWF development of water operations criteria and BA/BO and 2081 analysis for Fall/Late Fall Run Chinook salmon effects with the expectation that the Final EIR/EIS will be consistent with the results and determinations of those efforts. Should the results of those efforts indicate that mitigation measures are necessary under CEQA, CDFW's expectation is that mitigation measures identified will be incorporated into the Final EIR/EIS. Fall/Late Fall Run Chinook salmon will not be included in the 2081 permit and potential impacts must be mitigated through CEQA.	

	4.3.7-124		CDFW will continue to participate in CWF development of water operations criteria and BA/BO and 2081 analysis for Winter-run effects with the expectation that the Final EIR/EIS will be consistent with the results and determinations of those efforts. Should the results of those efforts indicate that mitigation measures are necessary under CEQA, CDFW's expectation is that mitigation measures identified will be incorporated into the Final EIR/EIS. Steelhead will not be included in the 2081 permit and potential impacts must be mitigated through CEQA.	
	4.3.7-124	37	In section 4.3.7, the potential effects on fall run/late fall run are stated to be the same as those described for Alternative 4, Impact AQUA-73. In section 3.3.8, it refers to section 4.3.7 for analysis of alternative 4A. Please include summary analysis of the effects of construction of water conveyance facilities on chinook salmon (fall/late fall run ESU) instead of referring to section 3.3.8 which then refers the reader back to section 4.3.7.	
	4.3.7-125	1	Chapter 11 of the Public Draft EIR/EIS states that the dual criteria for impact pile driving are 206 dB for the peak sound pressure level and 187 dB cumulative for fish larger than 2 grams. In the example of cofferdam construction, based on an attenuation rate of 4.5 dB per doubling of distance, cumulative exposures to pile driving sounds could result in injury of fish up to 858 meters from the source piles. This conclusion and potential for behavioral effects on fish should be included in the NEPA and CEQA effects as well.	
	4.3.7-135	5	A 17% or 19% increase in egg mortality for any given year is significant; this is especially true if that year type occurs over a string of years. That said, both the relative and the absolute value show an increase in egg mortality, which is not consistent with the conclusion that "*…this increase <u>would not cause</u> an overall effect to fall-run Chinook salmon*". Additional explanation of how the author came to this conclusion	

			should be included.	
	4.3.7-159	25	Confirm timing of species life stages analyzed for effects.	
	4.3.7-168	12	"Flows in the Sacramento River upstream of Red Bluff were examined for juvenile fall-run migrants during February through May." Confirm timing of species life stages analyzed for effects. Juvenile emigration at Red Bluff occurs between December through April (Martin et al. 2001)	
	4.3.7-168	16	Confirm timing of species life stages of temperature analysis effects determination.	
	4.3.7-183	1	*"Mitigation Measure AQUA-78d: Slightly adjust the timing and magnitude of Shasta, Folsom, and/or Oroville Reservoir releases, within all existing regulations and requirements, to ameliorate changes in instream flows that would cause an adverse effect to fall-run Chinook salmon."* The discussion needs to summarize which months and factors are driving these impacts, such as elevated temperatures or reduced flows in which months and identify in which ways reservoir releases will alleviate these impacts. The term 'slightly' should be more clearly defined as it is vague and subject to interpretation; alternatively the term could be deleted.	
	4.3.7-198, 199	26-28, 1-21	We assume spring-run is suitable for use as a proxy for juvenile steelhead. However, the number utilized for spring run is based on a bioenergetics model. Therefore, the percentage of population impacted given for spring run would not be valid for steelhead unless the population sizes are the same. Additionally, the CEQA conclusions in this section (and potentially others) should clearly discuss the interaction of the NDD and SDD impacts as they relate to predation. This would include clarification of uncertainties associated with NDD impacts and the commitment	

			to and implementation of performance standards.	
	4.3.7-211	14	Water year types must be treated independently in order to fully evaluate project effects and therefore cannot be combined to summarize the relative difference between mean flows. We recognize the challenges of presenting large quantities of data but we also recognize the need for extremes to be presented in addition to the means in order to fully evaluate the impacts.	
	4.3.7-211	34	"The effect of H3_ELT on mean flow and water temperature in the American River would be negligible although increased exceedances of the 56°F temperature threshold indicate a negative effect to steelhead spawning and egg incubation conditions." This sentence seems contradictory in that the effect is stated as negligible, yet exceedances indicate a negative effect to steelhead spawning and egg incubation conditions. 56 degrees is not an optimal egg incubation temperature. It is sub-optimal therefore any excursions past 56 are detrimental to year classes on a population level. Richter and Kolmes (2005) concluded that egg mortality increased as incubation temperatures exceeded 10°C (50°F) and substantial mortality may occur when temperatures exceed 13.5°C to 14.5°C (56.3°F to 58.1°F). Based on experience at hatcheries in the Central Valley, optimal incubation temperatures appear to be in the 7°C to 10°C (44.6°F to 50°F) range (Myrick and Cech 2004). California's steelhead management plan (McEwan and Jackson 1996) suggests a slightly higher temperature range (from 9°C to 11°C [48.2°F to 51.8°F]).	
	4.3.7-212	11	"Flows in the Mokelumne River at the Delta were examined during the January through April steelhead spawning and egg incubation period (Appendix 11C, *CALSIM II Model Results utilized in the Fish Analysis*). Mean flows under H3_ELT throughout this period would be similar to flows under Existing Conditions, with	

			minor exceptions." "Mean flows in the Sacramento River at Keswick and upstream of Red Bluff during January through April under H4_ELT would generally be similar to flows under Existing Conditions, with minor exceptions." Please explain these "minor exceptions."	
	4.3.7-212	31	Mean flows below Thermalito Afterbay under H4_ELT would be 36% lower than existing conditions during January and February and up to 509% greater during April, yet it is stated that there would be no differences in mean water temperature for any months or water year types at that location. This conclusion needs more clarification on why the lesser or greater flows with the accompaniment of lower storage in Oroville will have no effect on temperature.	
	4.3.7-253	34	"As noted for other salmonids such as winter-run Chinook salmon, similar or slightly lower survival than for Existing Conditions based on the water conveyance facilities operations would be offset by the inclusion of bypass flow criteria, real-time operational adjustments, *Environmental Commitment 6 Channel Margin Enhancement*, *Environmental Commitment 15 Localized Reduction of Predatory Fishes*, and *Environmental Commitment 16 Nonphysical Barriers*. Overall, it is concluded that the impact to steelhead would be less than significant and no mitigation would be required." An impact of an operation cannot be offset with the same operation. Please replace "offset" with "minimized". In regard to EC 15 please refer to Appendix D. Appendix D states that these projects would be implemented as experimental/pilot efforts because these efforts may not result in any measurable benefit. The less significant conclusion is not supported, given the above discussion	

			and the previous paragraph (lines 27-29) that states "Near-field effects of Alternative 4A NDD on Sacramento River steelhead related to impingement and predation associated with the intake structures could result in negative effects on juvenile migrating steelhead, although there is high uncertainty regarding overall effects." Please provide further detail (e.g. performance standard and criteria) on how the project actions will ensure impacts are less than significant.	
	4.3.7-258	32-34	It is problematic to refer to Delta smelt rationales when describing impacts of construction related activities for other species. The rationale for Delta smelt explains that because they are not likely to be in the area, or may have a few individuals present during the construction window, that impacts are essentially not significant. This will not be the case with juvenile splittail, as they will be present during the construction window.	
	4.3.7-331	28	There is no assessment of entrainment at the North Delta Facilities in this section for Pacific Lamprey.	
	4.3.7-331	38	The statement regarding entrainment under Alternative 4A not being adverse on lamprey is unsubstantiated. It is widely known that the effects of entrainment are still unknown on lamprey (Goodman and Reid 2012). While analysis conducted for 4A shows a reduction of entrainment, the remaining level of entrainment is not presented and may have a significant effect on lamprey populations.	
	4.3.7-332	20-23	As mentioned previously, due to the uncertainty surrounding entrainment effects on Pacific Lamprey, it is inappropriate to assume that impacts related to water operations are less than significant simply because operations under 4A are expected to reduce entrainment. Until the effects of entrainment are better understood at the population level for Pacific Lamprey, there cannot be any certainty to impacts related to entrainment.	
	4.3.7-	17	There is no assessment of entrainment at	

	352		the North Delta Facilities in this section for River Lamprey.	
	4.3.7-352	34-36	The same comments mentioned previously related to Pacific Lamprey also apply here for River Lamprey.	
	4.3.7 372-373		There are potentially significant but unpredictable landscape level trophic and fish population dynamic effects that could result from large scale larval entrainment of striped bass and potentially American shad. The increase in larval striped bass entrainment is estimated to be 220%.	
	4.3.7-306	22	The assessment of NPB effects provided here is highly speculative. If the NPB did impede adult sturgeon migration this could have a substantial impact on Green and White sturgeon populations. Given the risks, assessing NPB effects on adult sturgeon migration, particularly at the reduced CWF river flows, should be a high priority element of the CWF targeted research and monitoring program.	
	4.3.7-309	33-38	The paragraph beginning here discusses temperature effects in terms of percentages, and equates changes of less than 5% as being no difference. Given that 5% of 60 degrees F is 3 degrees, and this level of change could be consequential for some species and lifestages, the "5%" reference is a poor descriptor of change and benchmark for concern. Also, if the "big picture" change could be characterized generally warmer or colder, it would be helpful information.	
	4.3.7-311	311, Table 11-4A-108	This table shows substantial effects, particularly in May and June. It would be useful if an explanation was provided for the underlying causes (and the relative contribution of the causes) for the effects. It would be particularly useful to know this for the NAA_ELT vs. H3_ELT comparison, which has climate change factored out.	
	4.3.7-315	Table 11-4A-111	The substantial effects shown in the table for the Existing Conditions vs. H4_ELT comparison illustrate an important point. The point is that ELT conditions are predicted to be substantially degraded from today's	

			conditions, and sturgeon and other species populations substantially diminished as a result. The degraded ELT conditions are in addition to the greatly degraded conditions of today, much of which is attributable to ongoing effects of the CVP and SWP. This circumstance is important context for assessing the importance of predicted NAA_ELT vs. H3&4_ELT effects.	
	4.3.7-323	4	The discussion beginning here regarding flow exceedances references AFRP recommendations. It is important to note that the AFRP was developed outside the context of the CWF. To the extent flows below the NDDs contribute to sturgeon production, the CWF de-couples outflow from earlier outflow/production relationships.	
	4.3.7-325	16	Changes in through-Delta flows due to the CWF are briefly mentioned here. Reductions in flows between the NDDs and the Sacramento-San Joaquin river confluence is the most substantial CWF environmental effect sturgeon will be exposed to. Chapter 4 and/or Chapter 11 should present modelling results for, and discuss, this specific physical effect. At present the specific influence of flow in this river reach on sturgeon production is not known, but given the magnitude of the physical effect, the effect on sturgeon production should be a major focus of the "targeted research and monitoring" mentioned at Line 24. The effect of flow in this reach on spawning migration initiation and passage, the effect of flow on juvenile survival through the reach should be high priority research and monitoring program elements.	
	4.3.7-375	2-3	This is inconsistent with 4.3.4-26 lines 39-41 and 4.3.4-29 lines 29-30 which indicate potential adverse indirect effects on striped bass spawning in the Delta as opposed to river conditions. Please include similar discussion here.	
	4.3.7-375	6	It is unclear why flow and temperature on the Trinity River were evaluated for effects on striped bass. Generally, proofread for consistency for the Trinity River to check to see if analysis is being	

			presented for species that are not present in the Trinity River such as the Sacramento San Joaquin roach. This is confusing to the reader.	
	4.3.7-403	33	The CEQA conclusion for hardhead incorrectly refers to roach. Please proofread and ensure the analysis is correct as to roach.	
	4.3.7-426	38	Beginning here, the document presents a summary of the NEPA and CEQA effects of Impact AQUA-203 ("rearing") on the California Bay Shrimp (Crangon franciscorum). The conclusions are based on modelling results presented in Appendix A, Chapter 11, Table 11-mult-13 from application of Kimmerer (2009) findings regarding the relationship between X2/flow on CBS abundance. Although the model application approach is reasonable, conclusions in the NEPA Effects "not adverse", and the CEQA Effects "less than significant", appear arbitrary and poorly supported.	
	4.3.7-437	4	The document asserts that the differences in abundance between NAA_ELT and the Alternative 4A scenarios are "small", and thus are insubstantial. These assertions raise important questions about the biological effects of the allegedly small changes, and detailed differences in results between water year types and between scenarios 4A(H3) and 4A(H4). The available scientific information suggests that the abundance of CBS in the estuary has already been substantially reduced by the CVP and SWP through reductions in winter-spring flows, particularly in drier years. Thus the predicted incremental losses in abundance (ranging from 2% to 7% attributable 4A(H3) operations should be viewed as adverse and an unacceptable effect on a highly impaired population. The same "Kimmerer 2009" approach could and should be used to describe the environmental baseline for CVP/SWP operations on CBS abundance. The differences in abundances predicted for H3 and H4 are quite substantial (averaging 8%, and ranging from 3 to 18%), emphasizing the potential benefit	

			of protecting winter-spring flows, which H3 fails to do. A close examination of Table 11-mult-13 also reveals important Year Type-related scenario effect differences. It is clear that the largest negative consequences (-7%) of 4A(H3) operations relative to NAA_ELT operations occur in years designated as Below Normal or Dry. This is an important observation, because years of this type are years when the population is already heavily impacted by low flows due to low precipitation and CVP/SWP operations. Given the importance of the CBS as a food source for other severely impaired key species (e.g. White Sturgeon), reductions in CBS biomass of the magnitude suggested by the modelling results in Table 11-mult-13 for proposed 4A(H3) operations should be viewed as a significant and adverse potential impact of the proposed project.	
	11-53; 11-61		Table 11-8 and 11-11 do not match for timing of fall run within the project area. Table 11-11 only shows fall run juveniles in May, but should also include the month of June as in Table 8.	
	11-141	22	The word "variable" should be plural.	
	11-141	29	"Murphy et al. 2011" is cited here and perhaps elsewhere, but not listed in the Chapter references.	
	Appendix D	General	It is not clear in this section which elements apply to HCP/NCCP Alternatives and which elements apply (or do not apply) to Alternative 4A. This section should clearly delineate for the reader which elements are included in 4A and which elements are not. Examples are: 1) Biological objectives in general 2) Inclusion of Fremont Weir operations in RTO as CM2 is a separate project under 4A. Integration of Yolo Bypass in general as a separate program under 4A 3) Ada**p**tive Management and Adaptive Management Fund 4) Implementation Office 5) Environmental Flow Program 6) Monitoring and Research – Table 3.6-4	

			Table 3.6-5 Table 3.6.6 etc. include biological objectives explain how these would apply not apply to 4A. How would they be modified for 4A. 7) Annual Delta Water Operations Plan 8) Annual Progress Report 9) Annual Delta Water Operations Report 10) Five-Year Comprehensive Review/5 Year Implementation Plan 11) Twenty-five year Climate Change Comprehensive Review 12) Suspension or Revocation of the State Permit 13) Authorized Entity Group 14) Permit Oversight Group 15) Evaluating and determining whether the diversion structures are achieving performance standards for covered fishes over the course of operations To the extent that criteria on the Conveyance operations (e.g. see page D.3-19) and Environmental Commitments *are* carried forward into the 4A project description, please more clearly, comprehensively and consistently highlight in Section 4.1.2, since those are components of the Project Description and as currently formatted they are difficult to discover and parse out from the modifications to Alternative 4.	
	D.1-1		As an example of our general comment above on Appendix D, please clarify the alternatives to which Section D.1-1 applies. Projects that are referenced in this section that would serve as mitigation for other projects (for example, to meet mitigation requirements under the 2008/2009 biological opinions), or have funding-based restrictions against their use as mitigation, should not be proposed as mitigation for Alternative 4A. In addition, please note that Proposition 1 funds cannot be used to pay the costs of mitigation of Alternative 4A. Also, please note that in the development of BDCP, decisions had yet to be made about the appropriateness of specific projects for "credit" under that plan.	

	D3.3-10	38-41	There is reference to a strong adaptive management and monitoring program to guide the experimental processes of CM 15 and CM 16. Please specify how this adaptive management and monitoring program is applicable to EC 15 and EC 16 under Alternative 4A.	
	D.3-11	6-8	There are striped bass that overwinter in the Cache Slough during fall. Striped bass upstream spawning migration timing overlaps with downstream juvenile migration timing for juvenile salmonids. Fremont Weir overtopping events have resulted in large numbers of adult striped bass observed during fish rescue operations in the Fremont Weir post flow reduction. It is likely that there will be striped bass that utilize this migration corridor if is made available via future Fremont Weir operations. Future evaluation of the Yolo Bypass as a migration corridor for striped bass should be evaluated under an adaptive management program to assess whether Sacramento River predation reduction is offset by increased YB predation and to what degree. Please consider adding this study to 3.4.1-5.	
	D.3.11	42-49	The updated Section 7 Hydro Analysis does not show appreciable difference in the proportion of flow into the interior Delta for the proposed action/Alternative 4A at Georgiana Slough which is linked in the analysis to the potential for entrainment. This section refers to Winter run then states the overall entrainment would be lower but it doesn't parse between rivers and runs of salmon. Please specify where/which runs contribute to the overall entrainment. Is it primarily a reduction in San Joaquin fall run due to less South Delta pumping or does it also refer to reduced entrainment of listed WR and SR which do not reside in the San Joaquin River system? IOS model shows overall decline in WR escapement due to reduced in-delta survival w/o increased salvage benefit. Please update	

			this section as new Section 7 analysis becomes available.	
	D.3.11	50-14 on next page	Cut and paste error. Two repeated paragraphs.	
	D.3-20	19-20	*"Operations will be managed at all times to avoid increasing the magnitude, frequency, or duration of flow reversals in Georgiana Slough above pre-NDD operations levels."* Please clarify this new language as it is subject to interpretation. Does this mean conditions existing today? Or does this mean conditions at the start of operations 15 years from now including climate change, increased demand, and sea level rise? Also please clarify if this means that there will be an increase in duration and frequency of periods when there is no net downstream flow i.e. conditions representing high slack tide.	
	D.3-20	33-34	*Upon approval of the BDCP a work group will be formed by the AMT to design and implement a research program to address the key uncertainties identified in Table 3.4.1-5.* How will this carry over to 4A?	
	D.3-21	4-7	*Bypass flow criteria can follow Table 3.4.1-2 alone if other measures developed through research can minimize effects on migrating covered fish past the north Delta diversions (e.g., floating surface structures diverting fish to the opposite side of the Sacramento River from the diversions).* Is this applicable to 4A? Bypass criteria are for through Delta survival and pulse protection is for survival at the screens. Diverting fish away from the screens will only serve to address impacts in the screen reach. Simply moving fish to the other side of the river by the intakes may not have an effect in downstream or through Delta survival. *"The objectives of the north Delta diversion bypass flow criteria include regulation of flows to 1) maintain fish screen sweeping velocities; 2) reduce*	

			upstream transport from downstream channels in the channels downstream of the intakes; 3) support salmonid and pelagic fish transport and migration to regions of suitable habitat; 4) reduce losses to predation downstream of the diversions; and 5) maintain or improve rearing habitat conditions in the north Delta."	
	D.3-23	Footnote 5	Please provide clarification on how RTO for Fremont Weir will be incorporated into Alt. 4A.	
	D.3.-27	Table 3.4.1-5	In general this table needs to be edited or a new table needs to be created to be consistent with 4A. First two lines refer to studies to determine if spring outflow and Fall X2 are needed in light of conservation measures to be implemented under HCP/NCCP. Because 4A has no conservation measures Spring Outflow and Fall X2 are necessary obviating the need for the studies. In addition, the Department proposes two studies for inclusion, either in the BDCP alternatives or in the new alternatives' adaptive management program. **Key Uncertainty #1**: The effect of reduced Sacramento River flow below the NDDs on adult sturgeon migration. Reduced flows have the potential to attenuate migration cues or degrade migration conditions. Proposed Research Activities: Intense monitoring of the timing and duration of adult sturgeon (Green and White) migration through the low flow reach (confluence to NDDs) at various flow rates. Monitoring to be accomplished using both acoustic tag and underwater (e.g. Didson or sonar technology) Time Frame: Beginning immediately, and extending through the first several years of NDD operation. **Key Uncertainty #2:** The effect of reduced southern Delta exports, and less negative OMR and Qwest flows on Delta	

			Smelt rearing and rearing habitat in the lower San Joaquin River. Proposed Research Activities: Part I: A thorough review of historical data to understand the factors that led to the collapse of juvenile Delta Smelt rearing in the lower San Joaquin River and southern Delta in the early 1970s, and the role through-Delta water conveyance played in that collapse. Part II: Intense monitoring of the annual movement of adult Delta Smelt into the lower San Joaquin River and central Delta, the extent of spawning in the region, the growth, survival, and distribution of subsequent juvenile smelt, and regional habitat conditions (i.e. flows, food density, temperature, turbidity, etc.). Time Frame: Immediate initiation of historical data review (Part I), with a product within 5 years that is utilized to develop hypotheses to be addressed during intense monitoring phase (Part II). Part II would begin 5 years prior to initiation of northern Delta diversions, and extend through the first five years of diversions (or until 2 Wet or Above Normal Year Types and 2 drier Year Types have been monitored. **Key Uncertainty #3:** The effect of reduced Sacramento River flow below the NDDs on juvenile salmonid outmigration. Reduced flows have the potential to reduce survival of outmigrating salmonids. Recent hydro analysis being conducted through the Section 7 process suggests that entrainment into the interior Delta may not decrease substantially under 4A. Thus, evaluation of bypass flows and subsequent adaptive management may be necessary to avoid impacts to listed runs of salmonids originating in the Sacramento River. Proposed Research Activities: Intense monitoring of the timing and duration of outmigration through the reduced flow reach to Chipps Island at various flow rates. Monitoring to be accomplished using both acoustic tag and other tagging studies. Beginning immediately, and extending through the first several years	

			of NDD operation.	
	D.3-34	35-38	Please provide references for these studies.	
	D.3-156	Table 3.6-1 5	Table 3.6-1 5. Monitoring Actions for Covered Fish Performance Focus Area It is unclear if this section needs to be edited, updated, or replaced for compatibility with 4A.	

References Cited

McEwan, D. and T.A. Jackson (1996). Steelhead Restoration and Management Plan for California. California Department of Fish and Wildlife, p. 244

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